

AICW during the period the 7Q<sub>10</sub> discharge is experienced, the saltwater-freshwater interface could move upstream to mile 356.2, which is 7.1 miles seaward of the proposed withdrawal location at mile 363.3. Thus, the investigation indicated that the AICW can provide a reliable supply of fresh water at the proposed withdrawal location in the vicinity of Myrtle Beach, even during the 7Q<sub>10</sub> low flow event.

## INTRODUCTION

The demand for freshwater near the coast in Horry and Georgetown Counties, South Carolina, has been increasing steadily with population growth and development. Maximum freshwater usage in 1982 was approximately 25 Mgal/d (million gallons per day) and is projected to be approximately 60 Mgal/d by the year 2000 (CH2M Hill, 1984). In general most water-supply development has centered on the deep Black Creek aquifer with only minor development of surface water and the shallow ground-water aquifer. Preferential development of ground water has been due in part to its abundance and lower cost, especially for small isolated communities (Zack, 1977).

Ground-water development has been limited to some extent by water quality. Water from sands within the major aquifer, the Black Creek system, contains concentrations of fluoride that exceed the maximum concentration limit for drinking water imposed by the U.S. Environmental Protection Agency and endorsed by the South Carolina Department of Health and Environmental Control (SCDHEC, 1981). In some areas, water from the water-table aquifer contains objectionable concentrations of iron greater than the secondary contaminant level for iron used by SCDHEC (1981).

In some areas of Horry and Georgetown Counties the ground-water resource is threatened because of improperly constructed and abandoned wells that provide an avenue for saltwater contamination. In some areas ground-water levels have been excessively lowered owing, in part, to well interference from pumpage. In the Myrtle Beach area, water levels in production wells have been drawn down to depths greater than 150 feet below sea level (Aucott and Speiran, 1985).

The potential of shallow aquifers in the immediate Myrtle Beach area to supply adequate quantities of potable water is limited (Speiran and Lichtler, 1986), and the chemical quality and excessive drawdown of the deeper Black Creek aquifer make its future reliability as the principal source of freshwater questionable. The freshwater flows in the Atlantic Intracoastal Waterway (AICW) may provide a reliable permanent source of potable water for the Myrtle Beach area.

In 1981, the U.S. Geological Survey, in cooperation with the Georgetown County Water and Sewer District, the Grand Strand Water and Sewer Authority, the Cities of Myrtle Beach and North Myrtle Beach, and the Myrtle Beach Air Force Base, initiated a study to determine the freshwater supply potential of the AICW. The study was concentrated in the vicinity of Myrtle Beach. A reconnaissance of the AICW from Bucksport to Little River Inlet by Johnson (1977) indicated that the freshwater upstream from the saltwater-freshwater interface was probably of quality suitable for most uses. An analysis by